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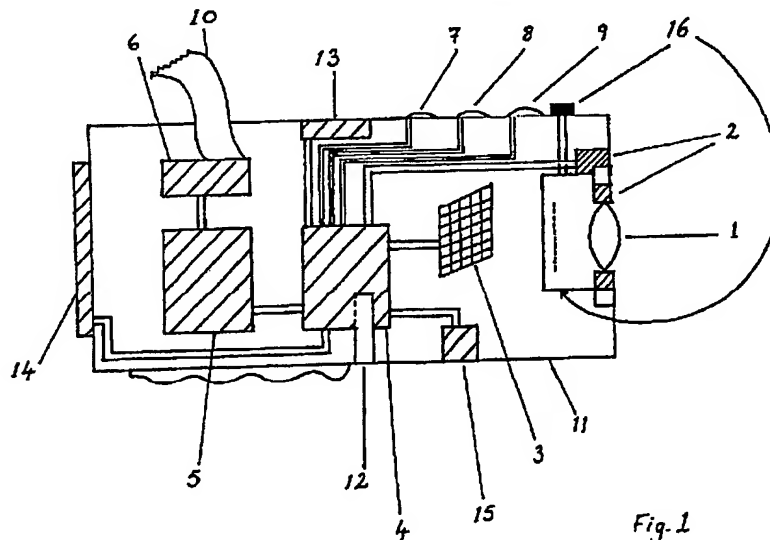NG4 2NZ, United Kingdom

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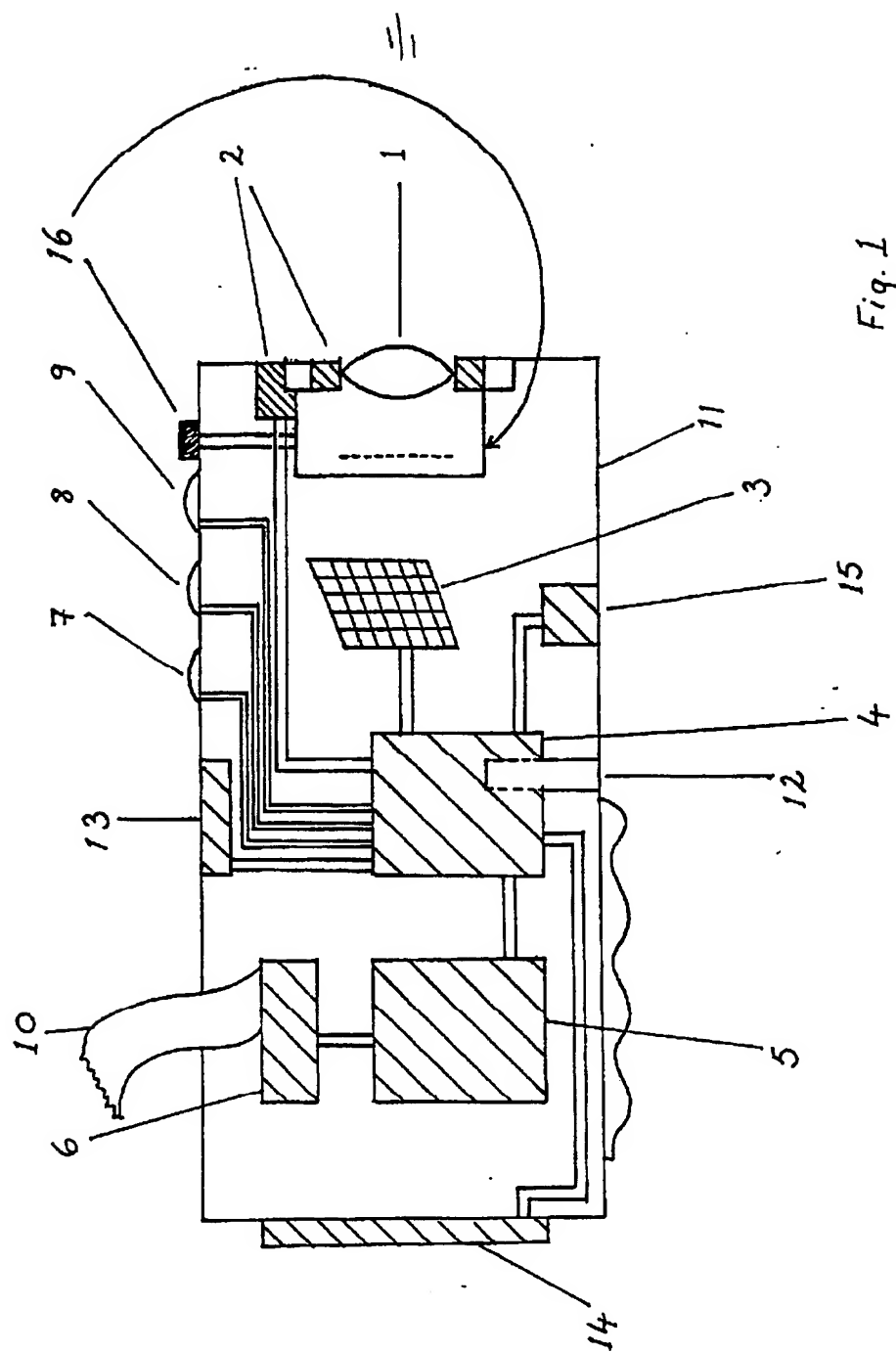G08G 1/00 , G07B 1/08

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G4Q QCB
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(56) Documents Cited
None

(58) Field of Search
UK CL (Edition N) G4Q QCB , G4T TAE TAX
INT CL5 G07B , G08G

(54) Vehicle identifier.

(57) A hand held unit with an electronic autofocusing camera and associated optical image recording and data processing facilities, which when pointed at car registration plates and clicking on, for instance, will record the car identity, time and position within a metered walk for comparison with previously stored data for the purposes of giving a rapid indication of non-compliance with parking regulations.

Fig. 1

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Fig. 1

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This invention relates to a hand held vehicle registration
plate identifier.

Vehicle registration plates (hereinafter referred to as
number plates) are the relevant identifying features which
traffic wardens or similar personnel log for assessing
infringement of local parking regulations.

The assessment of infringement or adherence to parking
regulations is a very labour intensive and time consuming
procedure in which the operative must manually note the
number plate and the time of parking at that location and
subsequently check whether it remains at that location after
the allowable period.

According to the present invention there is provided a unit
which is ideally hand held (a hand held unit only) but which
may also be embodied as a hand held unit which communicates
via wiring to a shoulder bag-mounted central processing
facility (or via radio frequency to such a shoulder bag
mounted processing unit or to a remotely located facility eg
within a nearby vehicle) which optically acquires an image
of a number plate, reducing the image by data processing
procedures to the alpha-numeric information content of the
number plate only if necessary, which in conjunction with
internal clock facilities and internal memory thus data logs
the number plate information and the time of the number
plate image acquisition.

At a subsequent time when the number plate is re-entered by
optical image acquisition, if the time of acquisition falls
outside an allowable time limit enforceable in the local
parking regulation (whose particulars can be entered
manually into the unit either via a key-pad or by the
selection of one of a variety of customised plug in PROMS)
the unit indicates a fault or "Penalty" situation and a
visual display on LCD (for example) of the offence is
provided with an automatic printout of the same which may
itself constitute a parking violation ticket or form part
thereof &/or provide a documentary record of the offence for
the parking violation records.

A specific embodiment of the invention will now be described
with reference to the accompanying schematic drawing.

Figure 1 shows in schematic form the elements of the unit:

Referring to the drawing the unit comprises a light tight enclosure and chassis 11 which contains and supports an imaging lens system comprising a lens of suitable field of view 1, suitably high speed autofocus assembly,2, communicating to the central processing unit,4, in conjunction with image sensor (area type CCD or linear array or similar),3, image data processing and reduction for storage and retrieval of maximum number plate information with minimum memory requirements and minimum speed of retrieval (for instance in one approach by minimal pixel map representation of the data and by other conventional data compression techniques) in central processing unit,4, including as disk or diskette derived software routines or hardwired (e.g. PROM) embodied routines for image abstraction and analysis and storage in storage medium,5, which may be disk or diskette or some other form of solid state memory or storage medium refreshible and erasable for subsequent pattern retrieval and matching via above routines available to the CPU.

Local rules or operating routines enforceable in a specific area can be input via custom hard-wired PROMS inserted into unit as occasion demands,12, and/or specific local information or other data entry may also be input via alphanumeric keypad,14.

Pattern matching of number plates is achieved by CPU and associated software embodied within the processor as disk or diskette accessible files and routines or available to the processor from dedicated custom PROMS, both for the purposes of image analysis, reduction and comparison and for the purposes of indexing to digital indication of location provided by a digital pedometer,15, derived "footstep" index which in the appropriate "footstep index" mode relates the number plate data acquired to a location in a pedometer metered "walk" as well as to a time of data acquisition, and thus provides an indication of location in space.

Data is therefore logged on the basis of
1) alphanumeric identity
2) time of acquisition
and if required,
3) position within a metered "walk".

A datum entry via re-acquisition of the same number plate which indicates a parking regulations violation via pattern matching to a previously recorded entry falling outside an allowable time segment (or other related parameter, which may be entered as required by the traffic operative through the keypad,14, or PROM,12,) is automatically logged as an offence and recorded as such,and may be displayed as such on LCD,13, and printed out,10, for instance with a dedicated thermal type printer or other printing means,6.

5 represents data storage system if distinct from CPU
7,8,9 indicate visible light emitting diodes which may be replaced by or accompanied with audio tone or voice synthesized indications and cues for:

(for example): 7, Image not decodable; try again or log data
manually

                8, Parking regulations offence
                9, Parking regulations observed.

16,   Electronic exposure metering and
       Shutter release.

CLAIMS:

1   A hand-held number plate
data logger which comprises a light tight enclosure and
chassis supporting a suitable field of view lens and high
speed autofocus system together with area type array or
similar suitable image detector communicating to data
processing and storage and retrieval units for the purposes
of comparing the presence or absence of number plates at a
specific location or within a designated area within a
designated time period considered as the "allowable time
period", where pattern matching outside the allowable time
period (constituting a parking regulations infringement) is
automatically logged as a disallowed match and where the
offence is indicated to the operator through the agency of
visible and or audio cues and indicating means, which may
include LEDs, tone generators, speech synthesizers and
automatic issuing of documentation, eg parking offence
tickets.

2   A hand-held unit as claimed in claim 1 above, wherein
the unit comprises merely the optical input means, data
processing being undertaken by a remote unit, eg shoulder
bag pack in communication with the hand-held optical unit
via wiring or via r.f. or where the processing unit is
situated within a vehicle and is in communication with the
hand-held optical data input means via r.f.

3   A hand-held unit as claimed in claims 1 and 2 above
wherein a digital pedometer is incorporated within the hand
-held unit itself (or digitally encoded pedometric
information is communicated to the unit from a remote
sensor(s))to provide a correlation index for position to
which number plates and their times of recording can be
placed approximately within a "walk" corresponding to the
"beat" of a parking regulations warden.

4   A hand-held unit as above in which the various elements
of image acquisition, data processing, digital pedometer
recording are physically separate but functionally linked eg
via wiring &/or r.f.

5   A hand-held unit as above in which PROMS to implement
universal image processing routines or locally relevant
routines for local regulations can be input.

6   A hand-held unit as above in which documentation may be
automatically issued, for example in the instance of a
parking regulations infringement.

7   A unit or units performing substantially as described
above but which are vehicle mounted.

8   A number plate data logger substantially as described
herein with reference to Figure 1 of the accompanying
drawing.

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Section.17 (The Search Report) — 5 —

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Relevant Technical fields

(i) UK Cl (Edition K) G4Q (QCB)
G4T (TAE TAX)

(ii) Int Cl (Edition 5) G08G
G07B

Databases (see over)

(i) UK Patent Office

(ii)

Search Examiner
M J DAVIS

Date of Search
28 OCTOBER 1992

Documents considered relevant following a search in respect of claims   1-8

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
	NONE	

Category	Identity of document and relevant passages	R levant to cla
	—6—	

Categories of documents

X: Document indicating lack of novelty or of inventive step.

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E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member f the same patent family, corresponding document.

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